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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/602,307	ROSE ET AL.
	Examiner	Art Unit	
	Andrew C. Lee	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/07/2009*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 – 6, 9 – 20, 23, 29 - 33* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 – 6, 9 – 20, 23, 29 - 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Claims 1 – 6, 9 – 20, 23, 29 - 33 are pending.

Claims 7, 8, 21, 22, 24, 25, 26, 27, 28 had been canceled.

Claim Objections

2.   Claim 31 is objected to because of the following informalities:

There is some discrepancy for the dependent claim 31. The claim cannot depend

upon itself. It is a typo. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Paulwels (US 20010030974 A1) in view of Johnson (US 6834315 B2).

Regarding claim 1, Pauwels teaches the limitation of a method comprising:

transmitting a first data stream to a switch fabric, said first data stream having a first priority

("traffic from lower priority classified queues" correlates to transmitting a first data stream to

a switch fabric, said first data stream having a first priority; Page 1, paragraph [0013]); and

at any time during said transmission, interrupting said transmission of said first data stream

("traffic has arrived at a queue having a higher priority classification than the queue from which traffic is currently being transmitted, suspend the current transmission" correlates to interrupting said transmission of said first data stream) to transmit a second data stream to said switch fabric, said second data stream having a second priority ("traffic has arrived at a queue having a higher priority classification" correlates to second data stream having a second priority; Page 1, paragraph [0013]);

Pauwels does not disclose explicitly interrupting said transmission of said second data stream to resume transmission of said first data stream to the switching fabric.

Johnson teaches interrupting said transmission of said second data stream to resume transmission of said first data stream to the switching fabric (column 4, lines 61 – 67, column 5, lines 1 – 10, Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Pauwels to include interrupting said transmission of said second data stream to resume transmission of said first data stream to the switching fabric as taught by Johnson in order to provide a technique for managing the flow of I/O requests to a device driver to ensure that I/O requests associated with a higher priority application or storage space receive preference in processing at the device driver over I/O requests associated with a lower priority (as suggested by Johnson, see column 2, lines 13 – 18).

Regarding claim 2, Pauwels teaches the method of claimed further comprising: resuming transmission of said first data stream even through there is data of the second

data stream to transmit to the switching fabric ("once the interrupting transmission has

completed, the transmission of the unfinished cell or packet can be immediately resumed

from the point at which it was interrupted" correlates to resuming transmission of said first

data stream even through there is data of the second data stream to transmit to the

switching fabric; page 2, paragraph [0014], page 3, paragraphs [0050], [0051]) .

Regarding claim 3, Pauwels teaches the limitation of the method of claimed further

comprising stopping said transmission of said first data stream; transmitting a first switch

code; and transmitting said second data stream (page 3, paragraph [0050], page 4,

paragraph [0054]).

Regarding claim 4, Pauwels teaches the limitation of the method of claimed further

comprising: transmitting a second switch code; and resuming transmission of said first data

stream (page 3, paragraph [0051], page 4, paragraph [0054]).

Regarding claim 5, Pauwels teaches the limitation of the method of claimed wherein

said first priority is a low priority ("traffic from lower priority classified queues" correlates to

said first priority is a low priority); and said second priority is a high priority (traffic has

arrived at a queue having a higher priority classification"; page 1, paragraph [0013]).

Regarding claim 6, Pauwels teaches the limitation of the method of claimed further

comprising: stopping transmission of a frame of said first data stream after detection of a

start of frame and prior to detection of an end of frame (page 3, paragraph [0053]).

5.   Claims 1 – 6, 9 – 18, 20, 23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ellis et al. (5497371) in view of Johnson (US 6834315 B2).

Regarding claims 1, 13, 23, Ellis et al. teach a method, an apparatus comprising: a

first buffer (Fig. 2, element 28, low priority Buffer correlates to a first buffer) configured to

store data of a first data stream prior to transmission to a switching fabric, said data of said

first data stream having a first priority ("to store the packeted data to be transmitted, and

low priority" correlates to configured to store data of a first data stream prior to transmission

to a switching fabric, and a first priority; Fig. 2, column 4, lines 36 – 52); a second buffer

(Fig 2, element 26, high priority buffer correlates to a second buffer) configured to store

data of a second data stream prior to transmission to a switching fabric, said data of said

second data stream having a second priority ("high priority" correlates to a second priority;

Fig. 2, column 4, lines 36 – 52); a priority switch circuit (Fig. 2, element 30 priority encoder

correlates to a priority switch circuit) coupled to said first buffer and said second buffer,

wherein said priority switch circuit is configured to upon detection of data of said second

data stream, interrupt a transmission of data of said first data stream from the first buffer at

any time during said transmission and transmit data of said second data stream from the

second buffer (Fig 2, column 4, lines 40 – 66).

Ellis et al. do not disclose explicitly wherein said priority switch circuit is further configured to interrupt said transmission of said second data stream from the second buffer to resume transmission of said first data stream from the first buffer.

Johnson teaches wherein said priority switch circuit is further configured to interrupt said transmission of said second data stream from the second buffer to resume transmission of said first data stream from the first buffer (column 4, lines 61 – 67, column 5, lines 1 – 10, Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ellis et al. to include wherein said priority switch circuit is further configured to interrupt said transmission of said second data stream from the second buffer to resume transmission of said first data stream from the first buffer as taught by Johnson in order to provide a technique for managing the flow of I/O requests to a device driver to ensure that I/O requests associated with a higher priority application or storage space receive preference in processing at the device driver over I/O requests associated with a lower priority (as suggested by Johnson, see column 2, lines 13 – 18).

Regarding claim 2, Ellis et al. teach the limitation of the method of claimed further comprising: resuming transmission of said first data stream even through there is data of the second data stream to transmit to the switching fabric ("it is possible for a low priority packet to be interrupted as often as required and to be fragmented to any size, depending on the arrival of high priority packets at the transmit queue" correlates to resuming transmission of said first data stream even through there is data of the second data stream

to transmit to the switching fabric; column 4, lines 61 – 65).

Regarding claim 3, Ellis et al. teach the limitation of the method, apparatus of claimed further comprising stopping said transmission of said first data stream; transmitting a first switch code; and transmitting said second data stream (Fig. 3, column 5, lines 10 – 20).

Regarding claim 4, Ellis et al. teach the limitation of the method of claimed further comprising: transmitting a second switch code; and resuming transmission of said first data stream (Fig. 3, column 4, lines 44 – 48, lines 61 – 63)

Regarding claim 5, Ellis et al. teach the limitation of the method of claimed wherein said first priority is a low priority ("low priority" correlates to said first priority is a low priority); and said second priority is a high priority ("high priority" correlates to said second priority is a high priority; column 4, lines 38 – 44).

Regarding claim 6, Ellis et al. teach the limitation of the method, apparatus of claimed further comprising: stopping transmission of a frame of said first data stream after detection of a start of frame and prior to detection of an end of frame (column 4, lines 41 – 48).

Regarding claim 9, Ellis et al. teach the limitation of the method of claimed further comprising: storing data of said first data stream in a first FIFO (Fig. 2, element 28 low priority buffer and queue; column 4, lines 38 – 44); and storing data of said second data stream in a second FIFO (Fig. 2, element 26 high priority buffer and queue; column 4, lines 38 – 44).

Regarding claim 10, Ellis et al. teach the limitation of the method of claimed wherein said interrupting of transmission of the first data stream comprises: upon detection of data in said second FIFO, interrupting said first data stream (column 4, lines 41 – 44).

Regarding claim 11, Ellis et al. teach the limitation of the method of claimed further comprising: receiving a data stream at a line card (column 3, lines 51 – 54), said data stream comprising frames of said first data stream and frames of said second data stream; and detecting the priority of said frames of said data stream (column 3, lines 54 – 63).

Regarding claims 12, Ellis et al. do not teach the method of claimed wherein transmission of the second data stream is interrupted to transmission a predetermined amount of bytes of data of said first data stream.

Johnson teaches wherein transmission of the second data stream is interrupted to transmission a predetermined amount of bytes of data of said first data stream.

(column 4, lines 61 – 67, column 5, lines 1 – 10, Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ellis et al. to include wherein transmission of the second data stream is interrupted to transmission a predetermined amount of bytes of data of said first data stream as taught by Johnson in order to provide a technique for managing the flow of I/O requests to a device driver to ensure that I/O requests associated with a higher priority application or storage space receive preference in processing at the device driver over I/O requests associated with a lower priority (as suggested by Johnson, see column 2, lines 13 – 18).

Regarding claims 14, Ellis et al. teach the limitation of the apparatus of claimed wherein said priority switch circuit (Fig. 2, element 30 priority encoder correlates to a priority switch circuit) is further configured to resume transmission of said first data stream if there is no data of said second data stream to transmit (column 4, lines 40 – 52, lines 61 – 63).

Regarding claim 15, Ellis et al. teach the limitation of the apparatus of claimed wherein said priority switch circuit (Fig. 2, element 30 priority encoder correlates to a priority switch circuit) is further configured to transmit a first switch code after the second buffer has transmitted data of said second data stream and prior to resuming the transmission of data of said first data stream (Fig. 2, element 30 priority encoder correlates to a priority switch circuit, column 4, lines 44 – 52).

Regarding claim 16, Ellis et al. teach the limitation of the apparatus of claimed wherein said priority switch circuit (Fig. 2, element 30 priority encoder correlates to a priority switch circuit) is configured to transmit a second switch code upon detection of data of said second data stream in the second buffer (Fig. 2, element 30 priority encoder correlates to a priority switch circuit, column 4, lines 44 – 52).

Regarding claim 17, Ellis et al. teach the limitation of the apparatus of claimed wherein said priority switch circuit is further configured to interrupt transmission of said first data stream during transmission of a packet of said first data stream from said first buffer (Fig. 3, column 5, lines 10 – 20).

Regarding claim 18, Ellis et al. teach the apparatus of claimed wherein said priority switch circuit is further configured to transmit a predetermined amount of bytes from said first buffer when the priority switch circuit resumes transmission of the first data stream (column 4, lines 63 – 66).

Regarding claim 20, Ellis et al. teach the limitation of the apparatus of claimed further comprising: a serial link (Fig. 2) configured to serialize data received from said first and said second buffers and said priority switch circuit and transmit said serialized data to a switching fabric (serially transmitting in packets of various sizes digital data of two or more priorities over a link correlates to a serial link configured to serialize data received from said

first and said second buffers; column 3, lines 51 – 54).

6.   Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis et al. (5497371) and Johnson (US 6834315 B2) as applied to claims 1 – 6, 9 – 18, 20, 23 above, and further in view of Hebb et al. (US 6463067 B1).

Regarding claim 19, Ellis et al. and Johnson fail to teach the apparatus of claimed further comprising: a port coupleable to a network device; and a forwarding engine coupled between said port and each of said first and second buffers, said forwarding engine configured to forward frames of said first data stream to said first buffer and forward second frames of said second data stream to said second buffer.

Hebb et al. teach the apparatus of claimed further comprising: a port coupleable to a network device (Fig. 1, "line interface" correlates to a port, "network segment" correlates to a network device; column 3, lines 23 – 27); and a forwarding engine coupled between said port (Fig. 2, elements 20, PHY I/O and elements 22 forwarding engine) and each of said first and second buffers (Fig. 2, Fig. 3, Fig.4, elements 64), said forwarding engine configured to forward frames of said first data stream to said first buffer and forward second frames of said second data stream to said second buffer ("column 4, lines 22 – 33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ellis et al. and Johnson to include a port coupleable to a network device; and a forwarding engine coupled between said port and each of said first and

second buffers, said forwarding engine configured to forward frames of said first data stream to said first buffer and forward second frames of said second data stream to said second buffer as taught by Hebb et al. in order to provide high-speed forwarding searching along with packet classification for packet filtering purposes (Ellis et al., see column 2, lines 23 – 25).

7.   Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis et al. (5497371) and Johnson (US 6834315 B2) as applied to claims 1 – 6, 9 – 18, 20, 23 above, and further in view of Kadambi et al. (US 7145869 B1).

Regarding claim 32, Ellis et al. and Johnson do not disclose the method claimed wherein the first and second FIFOs are implemented as circular FIFOs, the first and second FIFOs are implemented in a single memory, and a boundary between the first and second FIFOs is set by a pointer.

Kadambi et al. teach the method claimed wherein the first and second FIFOs are implemented as circular FIFOs, the first and second FIFOs are implemented in a single memory, and a boundary between the first and second FIFOs is set by a pointer ("round-robin arbitration" as circular FIFOs, column 8, lines 54 – 65; Fig. 54, column 72, lines 18 – 37).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ellis et al. and Johnson to include the features of claimed wherein the first and second FIFOs are implemented as circular FIFOs, the first and second FIFOs are implemented in a single memory, and a boundary between

the first and second FIFOs is set by a pointer as taught by Kadambi et al. in order to

provide a method for avoiding out-of-ordering of frames in a network (as suggested by

Kadambi et al., see column 1, lines 48 – 49).

Regarding claim 33, Ellis et al. and Johnson do not disclose the method claimed

further comprising: stopping transmission of a frame of said second data stream after

detection of a start of said frame and prior to detection of an end of said frame.

Kadambi et al. teach the method claimed further comprising: stopping transmission

of a frame of said second data stream after detection of a start of said frame and prior to

detection of an end of said frame (column 26, lines 15 – 30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to modify the teachings of Ellis et al. and Johnson to include the

features of the method claimed further comprising: stopping transmission of a frame of said

second data stream after detection of a start of said frame and prior to detection of an end

of said frame as taught by Kadambi et al. in order to provide a method for avoiding out-of-

ordering of frames in a network (as suggested by Kadambi et al., see column 1, lines 48 –

49).

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   Claims 29, 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kadambi et al. (US 7145869 B1).

Regarding claim 29, Kadambi et al. disclose a method comprising: transmitting a first data stream to a switch fabric, said first data stream having a first priority; transmitting a first switch code (column 1, lines 49 – 56); transmitting a second data stream to said switch fabric, said second data stream having a second priority; transmitting a second switch code (column 1, lines 49 – 56, Fig. 51); and resuming transmission of said first data stream, wherein the first switch code comprises at least one of an indication that the data following the first switch code has a different priority than the data preceding the first switch code and that the data preceding the first switch code is the last data of a frame (Fig. 13, column 38, lines 45 – 64, "NP value equals 1x" interpreted as the first switch code; column 41, lines 47 – 64), and the second switch code comprises at least one of an indication that the data following the second switch code has a different priority than the data preceding the second switch code and that the data preceding the second switch code is the last data of a frame ("NP value is found not equals 1x" interpreted as the second switch code Fig. 46, column 41, lines 47 – 64).

Regarding claim 30, Kadambi et al. disclose an apparatus comprising: a first buffer configured to store data of a first data stream prior to transmission to a switching fabric,

said data of said first data stream having a first priority, wherein said switching fabric is comprised of a first crossbar, wherein said first crossbar is configured to receive said first data stream (column 1, lines 49 – 56, Fig. 27b, column 61, lines 3 – 17); a second buffer configured to store data of a second data stream prior to transmission to said switching fabric, said data of said second data stream having a second priority, wherein said switching fabric is comprised of a second crossbar, wherein said second crossbar is configured to receive said second data stream (column 1, lines 49 – 56, , Fig. 27b, column 61, lines 3 – 17); and a priority switch circuit coupled to said first buffer and said second buffer, wherein said priority switch circuit is configured to, upon detection of data of said second data stream, interrupt a transmission of data of said first data stream from the first buffer at any time during said transmission and transmit data of said second data stream from the second buffer ("COS manager" interpreted as a priority switch circuit; column 57, lines 52 – 67, column 58, lines 1 – 5).

Regarding claim 31, Kadambi et al. disclose the method claimed wherein said priority switch circuit is further configured to interrupt said transmission of said second data stream from the second buffer to resume transmission of said first data stream from the first buffer (Fig. 52, column 70, lines 12 – 45).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kadambi et al. (6952401 B1) disclose a method for load balancing in a link aggregation environment, wherein the method includes the steps of determining if a packet flow in a network switch exceeds a predetermined threshold.

- Barroso et al. (6636949 B2) disclose in a chip multiprocessor system, the coherence protocol is split into two cooperating protocols implemented by different hardware modules. One protocol is responsible for cache coherence management within the chip, and is implemented by a second-level cache controller.

- Youngblood (4980820) discloses an interrupt driven digital processing system is disclosed including routines for servicing interrupt requests received from a plurality of interrupt sources.

- Bruckman (6891855) discloses a method and apparatus for transmitting data over a channel having a variable transmission rate.

- Fichou et al. (5790522) disclose traffic congestion control is provided for a network node multiport switch capable of switching data packets of different priorities from input lines, via receive adapters, to output lines via transmit adapters.

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571) 272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew C. Lee/::<12/09/2007>

EDAN . ORGAD
SUPERVISORY PATENT EXAMINER